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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,480	07/26/2006	Samuel Neto	13111-00037-US1	2574
23416 7590 10/31/2008 CONNOLLY BOVE LODGE & HUTZ, LLP P O BOX 2207 WILMINGTON, DE 19899				
EXAMINER				
SAHA, BIJAY S				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/573,480

Applicant(s)

NETO ET AL.

Examiner

BIJAY SAHA

Art Unit

4181

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date 03/24/2008
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-10 and 12-20, drawn to a process for producing a catalyst.

Group II, claim 11, drawn to the use of the catalyst.

PCT: Lack of Unity

1. The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature which is referred to Annex B of Appendix A1 of the MPEP (Administrative Instructions under the PCT, "Unity of Invention"). The express "special technical features" is defined as meaning those technical features that define a contribution which each of the inventions, considered as a whole, makes over the prior art." (Rule 13.2). Unity exists only when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding claimed special technical features. In this case, the technical feature shared by each invention is the process for producing and use of the catalyst. The common feature among all these groups is the titania catalyst. The question of unity of invention has been reconsidered retroactively by the

examiner in view of the search performed; a review of US6124499 (Sept 26, 2000 Hibst et al) and JP405138028A (April 22, 1992, Bielmeier et al), make clear that the inventions of the groups I-III lack the same or corresponding special technical feature because the cited reference(s) appear to demonstrate that the claimed technical feature does not define a contribution which each of the inventions, considered as a whole, makes over the prior art. Accordingly, the prior art of the record supports restriction of the claimed subject matter in to the groups as mentioned immediately above.

2. During a telephone conversation with **Attorney Burton Amernick** (telephone 202 331 7111) on **09/15/2008** a provisional election was made **with** traverse to prosecute the invention of **Group I, claims 1-10 and 12-20**. Affirmation of this election must be made by applicant in replying to this Office action. **Group II Claim 11** was withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Status of Application

The claims 1-20 are pending and the elected claims 1-10 and 12-20 are presented for the examination. The non-elected claim 11 is withdrawn from the consideration.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: claim 10 utilized a dissolved vanadium. however, there is no teaching how to make dissolved vanadium in both claim or the specification.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-10 and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mauldin et al (USP 4,977,126 Dec. 11, 1990) in view of Ruedinger et al (USP 6,274,763 Aug. 14, 2001).

Regarding applicant claim 1, 2 and 3: Mauldin teaches the following:

- A process for the preparation of catalyst used for production of hydrocarbons in the gas phase (Col. 2 lines 31-33)
- Support material in the form of titania-alumina, silica and alumina (Col. 6 lines 25)
- Weight of support material in the range of 1.0 kg to 22.0 kg (Col 3 Table 2)
- A fluidizing gas air (Col 6 line 58)
- Fluidizing air rate in the range of 55 to 375 CFM (approximately 95 to 640 m³/h) (Table 2 Col 5)
- Temperature in the range of 40 to 110 °C (Table 2 Col 7) maintained by the fluidized gas (Col 4 line 14)

- A feed solution that contains various chemical constituents for the catalyst (Col 3 lines 56-59)
- Support particles are sprayed with a suspension containing catalyst constituents (Col 3 line 43)
- Feed rate of the solution in the range of 19 – 294 grams/min (Table 2 Col 4).

Mauldin does not explicitly teach the following:

- Composition of the binder in the suspension or solution containing the catalyst constituents,
- quantity of the binder in the suspension or solution containing the catalyst constituents.

Ruedinger teaches the following:

- Vinyl acetate and vinyl laurate (Col 5 line 17) as binder (Col 6 line 23)
- Loading of binder as 29 gram (3%) in Example 1 (Col 5 line 47) and 43.5 gm (6%) (Col 7 line 41)
- Other components of catalysts such as TiO_2 and V_2O_5 (Col 5 line 47)

At the time of invention it would have been obvious to a person of ordinary skill to synthesize the catalyst utilizing the process parameters of **Mauldin** and adding binder in the solution in view of the teaching of **Ruedinger**. The suggestion or motivation for doing so would have been to enhance the adhesion of inorganic catalyst chemical

components (such as V_2O_5) on to the support material. In the absence of a binder, inorganic components do not adhere well to the support material.

With respect to Parameter K, taking the Table 2 Catalyst Preparation No. 1 data from **Mauldin** and normalizing the numbers on the basis of support weight of 1 kg to 80 kg (as an example), the air flow rate, solution rate and support weight are 7608 m³/h, 1680 gm/min and 80 kg; respectively. Temperature is 95 °C and Binder concentration is 3%.

Hence, normalizing the **Mauldin's** support weight (from 1 kg to 22 kg) to applicant's support weight (from 60 kg to 240 kg), the range of flow gas and solution rate are similar to the applicant's data.

Binder wt.% data as shown by **Ruedinger** is in the range of 3% to 6%.

Temperature is in the range of 40 °C to 110 °C.

Since the process parameters are in the range of applicant's data, it is expected that the K value will also follow.

Regarding applicant claims 4, 12 and 13, Mauldin discloses air (Col 3 line 57).

Regarding applicant claims 5, 6, 14, 15 and 16 Ruedinger discloses Two-coat catalyst (Col 5, Example 1) where 2nd spray suspension is sprayed on top of 1st spray suspension.

Regarding applicant claims 7, 17, 18, 19 and 20, Mauldin teaches application of supports in the form of spheres and extrudates in the size of 0.8 mm (Col 6 Table 1). Mauldin does not explicitly teach catalyst in the shape of cylinders, rings or columns. Using the extrusion, desired size and shape can be obtained.

Regarding applicant claim 8, Mauldin discloses fluid bed equipped with nozzles entering either above or below to the bed; such devices being available from commercially available sources and suppliers (Col 4 lines 45-55).

Regarding applicant claim 9, Ruedinger discloses application of TiO_2 and V_2O_5 (Col 5 line 47) in the range of 1-4 wt. %; Ruedinger also teaches ball milling process (Col 5 line 48). Ruedinger does not expressly teach a specific particle size range. It is commonly known in the art that ball milling process (taught by that Ruedinger) is capable of producing the particle size in the range of 20 micron to 250 microns.

Regarding applicant claim 10, Ruedinger discloses application of V_2O_5 (Col 5 line 47).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BIJAY SAHA whose telephone number is (571)270-5781. The examiner can normally be reached on Monday- Friday 8:00 a.m. EST - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on 571 272 0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bijay Saha

October 16, 2008

Art Unit 4181

/Vickie Kim/

Supervisory Patent Examiner, Art Unit 4181